

ENTERPRISE RISK MANAGEMENT IMPLEMENTATION AND EARNINGS QUALITY: AN EMPIRICAL INVESTIGATION ON NIGERIAN FINANCIAL SECTOR

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Abstract

Researches on Enterprise Risk Management (ERM) have gained relevance in accounting and finance literature in recent years, due to more stringent regulations following the global financial crisis. Based on this recent development, this study investigates whether compliance with Enterprise Risk Management implementation impact earnings quality of fifty (50) financial firms in Nigeria. Generalised Method of Moments (GMM) estimator and difference-in-differences analysis were used to test the hypothesis of the study. We also use content analysis method to evaluate the ERM disclosure of the selected financial firms. The results shows that compliance with ERM strategy improves earnings quality and performance. In addition, the result reveals that the implementation of ERM contributes 45.6% increase to earnings quality during the post-ERM period (2019-2023) using the difference-in-differences method. This study contributes to knowledge in accounting and finance literature with respect to ERM research in under-investigated context (Sub-Saharan Africa) with a specific focus on Nigeria.

Keywords: *Earnings Quality, Enterprise Risk Management, Financial Firms, Performance, Nigeria*

1. Introduction

Issues relating to risk management in recent years have become a major focus in most corporate organizations. Shareholders and investors have over the years grieved continuously from issues or matters of erratic business performance (Daud, et al., 2011). Researchers have labelled the practice of risk management in many organizations as inadequate and weak (Pagach & Warr 2011; Prasad et al., 2018; Abideen et al., 2020). The crisis or failure observed in Enron and WorldCom in 2001 and 2002 respectively had brought to fore the insufficiencies of practice of good

corporate governance, lack of compliance and monitoring as well as weak risk management initiatives (Erin et al., 2018). Risk management as the name implies has become a mantra which has infused the supervisory and management domains. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) in 2001 designed concept of Enterprise Risk Management (ERM) in an attempt to address the recurring failure of corporate organizations worldwide and to confront the issues of risk management ineffectiveness. COSO (2004) framework encompasses all areas of the internal

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control mechanism, but also adds the component of corporate strategy, event identification and risk response. More so, it basically helps organizations to apprehend, handle and pawn the uncertainty of the future in order to aid organizational value creation.

The issue of Enterprise Risk Management (ERM) became relevant as a result the financial crisis that happened in the financial sector in 2008. Dabari and Saidin (2015) opined those financial institutions have been criticized as a result of their unethical practices that has led to huge loss to investors. However, the issue of ERM has been taken up by both domestic and global regulatory bodies so as to protect the interest and investments of shareholders. For proper monitoring, countries across the world have provided guidelines on how firms are expected to conduct their business in ways devoid of unethical behaviour (Daud et al., 2011; Erin, et al., 2017; Olayinka, et al., 2019).

Kirkpatrick (2009) argued that the recent global crunch was partially credited to the weakness in corporate governance and failed risk management system. As a response to these corporate failures; regulators, risk agencies, and risk professionals have pushed for more structured and integrated approach to risk management practices in organizations. Traditional risk management have been proven by most studies to have failed to take into cognizance and account some proactive steps that can address uncertainties in an holistic and integrated manner, which have led into call for ERM. Bromiley, et al. (2014) described ERM as amalgamation of portfolio view of firm risk. In order to manage a risks' portfolio, there is a need for a focused and strategic approach as well as a well-governed system. In contrary to this, the traditional and conventional risk management system

2. Literature Review and Theoretical Background

includes identifying risks individually or in a fragmented way of defining, assessing and monitoring of risk. Under this approach, risk reporting entails high formality, structure, or centralization (Pagach & Warr 2011; Erin, et al., 2019; Arumona, et al., 2019). Culp (2001) argued that ERM had taken a right step beyond conventional risk management with additional attempts by companies to consolidate risk management process across organizational functions, people and internal control system.

However, based on the importance of financial institution in the development and growth of an economy (Uwuigbe, et al., 2017a), and the fact that most of economic crimes and financial fraud pass through the financial sector, the compliance with ERM framework became a tropical issue in the financial sector. In 2012, central bank of Nigeria mandated all the listed financial institution operating in Nigeria to submit quarterly report of their level of compliance to the provision of ERM framework and other regulatory documents.

Previous research that studied the nexus between ERM and earnings quality in Nigeria failed to consider the pre-ERM era and post-ERM comparative study (Erin et al., 2019; Golshan and Rasid 2012; Dabari and Saidin 2015). Based on this assumption, our analysis offers empirical evidence of how ERM system has influenced the earnings quality of selected quoted Nigerian financial firms. Therefore, the curiosity to carry out this study is to know, to what degree has the compliance with ERM implementation impacted earnings quality of the selected financial institution operating in Nigeria? This study adds to literatures in accounting and finance on how risk governance, risk management affects earnings quality considering the pre-ERM and post-ERM period, especially in evolving economies like Nigeria.

2.1 Enterprise Risk Management and Earnings Quality

Earnings quality is a concept that has been debated in finance and accounting literature over the years due to its relevance in producing high-quality accounting information. Earnings quality is one of the major indices used in value relevance research (Ohlson 1995; Emeni, et al., 2016; Prasad et al. 2018; Erin et al., 2019; Snyder 2019; Abideen et al., 2020). In accounting research, there is no uniform definition of earnings quality. Earnings quality is perceived to be a reflection of firm's current operating performance, which serves as a good indicator for the future operating performance of a company (Dechow & Schrand 2004; Ame, et al., 2017; Snyder 2019; Erin et al., 2019; Erin, et al., 2020a). The most important aspect of earnings quality is its usefulness in assessing the value of a firm. Kothari, et al. (2005) opined that the role of institutional investors, audit committee, risk analyst, board of directors and financial analyst cannot be underestimated in enhancing the quality of earnings. These experts have the power in monitoring the activities of managers in order to reduce the manipulation of earnings.

The subject of ERM has in recent times received significant attention among risk analyst and financial analyst because of its ability to reduce earning management, improve earnings persistence, improve financial and non-financial disclosure and improve earnings quality (Soliman & Adam 2017; Erin, et al., 2020a). It is believed that ERM adoption will improve a firm's share price, increase earnings disclosure and firm value from various supervisory or regulatory frameworks. Similarly, the research by Pagach and Warr (2011) observed that a significant positive relationship exists between earnings quality and ERM system. These studies used various proxies to measure earnings quality such as earnings predictability, accrual quality, the persistence of earnings and earnings volatility. Furthermore, other related extant studies such as (Cohen, et al.,

2014; Erin, et al., 2020b) revealed that implementation of ERM has influenced the value relevance of accounting information issues like the predictive value of earnings, earnings management and earnings volatility. Alviunessen and Jankensgard (2015) described ERM as a central way through which risk exposure can be managed and a company-wide method of managing information that relate to management of risk. Likewise, Schaberl (2016) emphasised that ERM is an all-inclusive method of managing risk that is associated with firm's operation so as to maximize business opportunities and minimize threats that could diminish shareholders' wealth and firm's capital.

Most studies on earnings quality revealed that it serves three important purposes for the organization. These include (i) ability of earnings to reflect the current operating performance of a firm (ii) it is a better indicator to assess future operating performance and (iii) its power to accurately annuitize the value of a firm intrinsically (Liebenberg & Hoyt 2003; Dochow & Schrand 2004; Okoye, et al., 2017). In the same vein, COSO (2004) framework revealed that implementation of ERM allows management to assess the risk elements of all job functions in the organization. This exercise puts more pressure on managers to disclose transparency information regarding earnings status. This process will eventually lead to improvement in the financial reporting process quality as well as earnings quality.

This study will be underpinned on Legitimacy theory because of its ability to analyse the relationship between the business and its environments. Legitimacy theory states that corporate disclosure reacts to environmental factors (economic, social, and political) and that disclosures legitimise actions (Preston and Post, 1975; Hogner, 1982; Lehman, 1983; Lindblom, 1983). This theory is premised on the fact that firms operates in society through a

social contract where they agree to execute numerous socially desired actions in return for approval of its goals, other rewards and its ultimate survival. It hence needs to disclose sufficient and complete social information for society to assess whether it is a good corporate citizen. In legitimizing its actions via information disclosure, the companies hope ultimately to justify its continued existence in the society where they operate (Lehman, 1983).

This theory is largely reactive in that it suggests that organisations aim to produce congruence between the social values inherent (or implied) in their activities and societal norms (Lindblom, 1983). Corporate social disclosures may however be considered as a reaction to the environment where they are engaged to legitimise corporate actions.

2.2 Hypothesis Development

There are few studies on the subject of ERM and earnings quality in literature. These studies reported that the implementation of Enterprise Risk Management has positive significance on the quality of earnings (Florio & Leoni, 2017; Malik, et al., 2019; Chen, et al., 2019). The study of Chen et al. (2019) explore how ERM implementation affects value creation of financial sector in Taiwan. The study sampled 68 firms for the period of 2001 to 2016. The study found that firms that implemented ERM experienced 5.3% increase in value creation compared to non-users' firms. Also, the study found that earnings improved by 9.22% while the cost reduced effectively by 16.34%. Chen et al. (2019); Malik et al. (2019) researched on how ERM affects performance of listed companies on FTSE350 in United Kingdom between 2012 - 2015. The study measured ERM using board, board independence, risk's committee governance and other firm-specific factors. The findings showed that effective ERM governance improve the overall performance of companies proxied by Tobin's Q.

Florio and Leoni (2017) studied the nexus between Enterprise Risk Management and firm performance in Italy. The study investigated listed non-financial firms on the Milan Stock Exchange for the period of 2011 to 2013. The study employed multivariate OLS regression while controlling for corporate governance and firm-related variables. The study found that firms with more refined ERM framework are more profitable and well appreciated by investors. In the other way round, firms with less or no Enterprise Risk Management systems are found not to be profitable and has minimal or no effect on firm performance.

Furthermore, Grace, et al., (2015) explored the value of investment on Enterprise Risk Management among insurance companies in the U.S. covering 2004-2006. The findings shows that implementation of Enterprise Risk Management has significant relationship on cost and revenue efficiency. In addition, they concluded that Enterprise Risk Management system positively impact firm's value. Ummu et al., (2022) worked on the effect of ERM and investment decision on firm value during the covid-19 pandemic. They carried out the study on the listed companies in Indonesia Stock Exchange for a period of 2020-2021 using a sample of 26 companies. The objective was analysed using multiple linear regression. The result showed that ERM and investment decision had a significant effect on firm value.

Callahan and Soileau (2017) investigated how Enterprise Risk Management affect operating performance of listed financial firms in US from 2006 to 2008. The study compared firms with matured ERM with less matured ERM system in relation to its effect on earnings performance. After controlling for board governance variables, the findings shows that firms with holistic ERM process is associated with enhanced earnings performance. Similarly, Sayihr and Farhan (2017) further revealed that ERM implementation provides a strong

platform to capture exclusive and comprehensive reporting towards accounting information and also contributes to earnings quality of sampled firms in Turkey. Lechner and Nadine (2018) also explored the major factors that determines ERM from the literature point of view. The study exhaustively reviewed existing work on the effectiveness of Enterprise Risk Management on corporate values and firms' performance. The study found in particular that firm size and strong institutional ownership positively impact on ERM implementation. The study concluded that Enterprise Risk Management has a significant positive influence on performance of firms. They found out that ERM adoption has the ability to create a sustainable performance in the

long run for companies that operate in a more volatile environment.

Lenka and Jindrich (2023) explored the indirect links between ERM and the performance of SMEs in Czech Republic covering 300 SMEs. The objective of the study was analysed using Structural Equation Modelling. The result from their study showed that implementation of ERM does not itself generate results except there is a mature organizational culture and monitoring of strategic risks.

Centred on the issues above, the study postulates that:

H₁: ERM Implementation is positively associated with Earnings Quality

3. Methodology

3.1 Sample

This study was carried out on 50 listed financial institution listed on the Nigerian Exchange Group for the period of 10 years i.e., 5 years of Pre ERM period of 2007-2011 and the post ERM period of 2019-2023. The choice of financial institution was as a result of the fact that they stabilize economy and are also capable of preventing a systemic collapse of the economic system. From the total of 52 listed financial firms as at 31st December 2023, a total of 50 firms were purposively selected by eliminating those firms that do not have variables adopted for the study and more so, newly listed firms were also expunged. Using the set of 50 firm specific data for the period of 10 years, content analysis was used to compute ERM_{index} by converting qualitative information into quantitative scores. In addition, dynamic panel data method using Generalized Method of Moments (GMM) was adopted to achieve the objective of the Study

This study will adopt the two-step approach ERM measure used by (Florio and Leoni 2017). For the first approach, all recognized indicators of the component of ERM such as, if the annual financial report consist of the Risk Management (Risk Report), if there is presence of Chief Risk Office in the company (CROx), whether the company designate specific risk management to the Risk Management Committee(R committee), the promptness of the assessment of risk procedure (R frequency), Inclusiveness of risk assessment procedure(R level), whether the company adopt both the quantitative and qualitative methods (RMethods), the interference of the board on committee on risk management activities in the firm(R board) will be added using Dummy Variables (i.e., 1 or 0). The ERM_{Index} (ERM_{index}) is ranged 0 to 6, however, the study adopted a binary variable for ERM_{index} which gives 1 if ERM_{index} is greater than 3 and 0 if otherwise.

3.2 Measurement of Variables

Table 1: Description of Variables

Variable(s)	Symbols	Operationalisation	Source(s)
Dependent Variable			

Earnings Persistence (Earnings Quality)	EP	Current Net Income lagged by total assets.	Arena, et al. (2010)
Independent Variable			
ERM Index	<i>ERM_Index</i>	ERM Disclosure Index (Content Analysis)	Florio and Leoni (2017)
Chief Risk Officer	<i>CRO</i>	dummy variable, set equal to 0 for firms not with CRO designation, and 1 if otherwise	Hoyt and Liebenberg (2008); McShane, et al. (2011)
Risk Management Committee Independence	<i>RMCI</i>	The ratio of directors that are non-executive on the risk management committee	Ramlee and Ahmad (2015)
Control Variables			
Earnings per Share	<i>EPS</i>	Net profit of shareholders divided by an average number of outstanding ordinary shares.	Daud et al (2011); Pagach and Warr (2011)
Earnings Volatility	<i>EVOL</i>	Current earnings less previous earnings divided by total assets ($NI_{it} - NI_{it-1}$)/Log of total assets	Leece (2012)
Audit Committee Independence	<i>ACIND</i>	The fraction of non-executive directors on the audit committee	Hoyt and Liebenberg (2011)
Leverage	<i>LEV</i>	End of the year liabilities divided by equity book value	Farrell and Gallagher (2015)
Firm Age	<i>FAGE</i>	Natural logarithm of the number of years since listed on the Nigerian Stock Exchange	Uwuigbe, et al. (2017b)

Source: Authors' Computation, 2024

3.3 Model Specification

The econometric model based on dynamic panel data is shown below:

$$EP = f(ERM_index, CRO, RMCI, EARN, EPS, EVOL, ACIND, LEV, FSIZE) \dots \dots \dots Eq. (1)$$

$$EP_{it} = EP_{t-1} \beta_0 + \beta_1 ERM_index_{it} + \beta_2 CRO_{it} + \beta_3 RMCI_{it} + \beta_4 EARN_{it} + \beta_5 EPS_{it} + \beta_6 EVOL_{it} + \beta_7 ACIND_{it} + \beta_8 LEV_{it} + \beta_9 FSIZE_{it} + V_i + \epsilon_{it} \dots \dots \dots Eq. (2)$$

EP = Earnings Persistence (it represents the continuous increase in earnings over a period of time) was used as a proxy for Earnings Quality.

EP_{it-1} = Earnings Persistence is lagged by one period to account for endogeneity in the explanatory variables

ERM_index = ERM Disclosure Index (Content Analysis)

CRO = Chief Risk Officer (We measure CRO using a dummy variable, for firms with CRO designate, we use 1 while firms without CRO we use 0)

RMCI = independence of Risk Management Committee (It represents the number or percentage of independent directors in the risk committee))

- EARN = Earnings (profit attributable to the business after the accounting year-end)
- EPS = Earnings per Share (it represents the net profit accrued to shareholders divided by an average number of ordinary shares outstanding.)
- EVOL = Earnings Volatility (it the variation of current year earnings compared to the previous year)
- ACIND = Independence of Audit Committee (it is the proportion of non-executive directors on the audit committee compared to the total number in the committee)
- LEV = Leverage (It is measured by firm's total divided by owners' equity)
- FSIZE = Firm Size (natural logarithm of firm's Total Assets)
- i = 1, 2, 3.... 50 (this represents selected firms used in the study)
- t = 1, 2, 35 (this represents the time series for the pre-ERM period (2007-2011))
- t = 1, 2, 35 (this represents the time series for the post-ERM period (2019-2023))
- β_{1-8} = Coefficient of the independent variables.
- V_i = Individual effects in the equation.

4. Result and Discussion

Bivariate Analysis

Table 2: Correlation Analysis- Pre-ERM Period (2007-2011)

	EP	CRO	EARN	RMCI	EPS	ERM	EVOL	FSIZE	LEV	ACIND
EP	1									

CRO	0.0307	1								
	0.4288*	-----								
EARN	0.4107	0.1520	1							
	0.4725*	0.0161**	-----							
RMCI	0.1682	0.0674	0.5717	1						
	0.0777*	0.2883*	0.0982**	-----						
EPS	0.3791	-0.0580	0.3643	0.2337	1					
	0.0917*	0.3605*	0.3429*	0.0002***	-----					
ERM	0.3478	0.0170	0.4082	0.3943	0.2754	1				
	0.2811*	0.3884*	0.4556*	0.1236*	0.4322*	-----				
EVOL	0.1552	-0.0795	0.1463	0.1677	-0.0507	0.2098	1			
	0.0141**	0.2112*	0.0206**	0.0079**	0.4243*	0.0008**	-----			
FSIZE	0.4265	0.1677	0.4149	0.4653	0.4320	0.4658	0.0718	1		
	0.5171*	0.0079**	0.1342*	0.0026***	0.0212**	0.4531*	0.2576*	-----		
LEV	0.2050	-0.0303	-0.0950	-0.0231	0.5187	-0.1295	-0.0068	-0.1871	1	
	0.0011***	0.4326*	0.1338*	0.1162*	0.0872*	0.0408**	0.3137*	0.0032***	-----	
ACIND	0.2614	0.0768	0.4992	0.1559	0.2325	0.4585	0.1103	0.4982	-0.0465	1
	0.1712*	0.2259*	0.4320*	0.0136**	0.0002***	0.2341*	0.0817*	0.0823*	0.4633*	-----

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Authors' Computation, 2024

Table 3: Correlation Analysis- Post-ERM Period (2019-2023)

	EP	CRO	EARN	RMCI	EPS	ERM	EVOL	FSIZE	LEV	ACIND
EP	1									
CRO	0.3623	1								
	0.4455*	-----								
EARN	0.4004	0.1520	1							
	0.2819*	0.0161**	-----							
RMCI	0.3419	0.0674	0.4308	1						
	0.5222*	0.2883*	0.3611*	-----						
EPS	0.2741	-0.0580	0.3207	0.4770	1					
	0.4946*	0.3605*	0.4671*	0.4871*	-----					
ERM	0.5349	0.0170	0.5771	0.4026	0.4636	1				
	0.3060*	0.3884*	0.1301*	0.2731*	0.2405*	-----				
EVOL	0.1502	-0.0795	0.1285	-0.0049	-0.1564	0.0590	1			
	0.3932*	0.2175*	0.0413**	-0.0785*	-0.4944*	0.2315*	-----			
FSIZE	0.4103	0.1677	0.8269	0.4762	0.3396	0.4315	0.0481	1		
	0.5586*	0.0079**	0.1601*	0.2391*	0.3051*	0.5327*	0.4588*	-----		
LEV	-0.0101	-0.0303	-0.2571	-0.2634	-0.3197	-0.1752	-0.0094	-0.3328	1	
	-0.1603*	0.4326*	-0.1900*	-0.3015*	-0.3135*	-0.8031*	-0.1484*	0.5586*	-----	
ACIND	0.2991	0.0768	0.3244	0.5230	0.4637	0.5546	0.3208	0.5523	-0.1952	1
	0.2368*	0.2259*	0.3891*	0.5638*	0.2424*	0.4983*	0.3339*	0.4351*	-0.1349*	-----

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Authors' Computation, 2024

Table 2 reports the bivariate analysis of pre-Enterprise Risk Management period testing the relationship between earnings persistence and other ERM variables. Earnings quality was measured using the persistence of earnings over a number of periods. The result reveals a positive relationship between CRO presence and earnings persistence. The same positive relationship is observed for other independent variables such as ERM (34%), RMCI (7%). Other controlled variables (EARN, EPS, EVOL, FSIZE, LEV, ACIND) show a positive relationship with earnings persistence.

Table 3 presents the bivariate analysis of the post-ERM period testing the relationship between earnings persistence and other ERM variables. A cursory look at

the probabilities of all the explanatory variables, it revealed a high probability level. This explains that the quality of earnings is more pronounced during the post- Enterprise Risk Management period i.e. (2013-2017). CRO presence records 64% compared to 42% during the pre-Enterprise Risk Management period. It shows an increase of 22% over the two periods. The same is observed for ERM which revealed 80% relationship with earnings persistence; compared to 34% recorded during the pre-ERM period. Also, the RMCI records 72% compared to 7% of the pre- Enterprise Risk Management period. The same increase in probabilities is applicable to other explanatory variables. This connotes that Enterprise Risk Management implementation presents a positive relationship with earnings quality.

Diagnostics Tests

Table 4: Heteroscedasticity Test-Consistent Standard Error

Variables	Breusch Pagan Test	Breusch Pagan Test	Heteroscedastic Z-stat	Heteroscedastic Z-stat
	<i>statistics</i>	<i>Prob.**</i>	<i>statistics</i>	<i>Prob.**</i>
EP	7.62676	0.00023	8.80643	0.0000
ERM	5.5777	0.04520	7.29562	0.0000
CRO	4.83753	0.00862	4.80962	0.0000
RMCI	5.21908	0.00000	38.9441	0.0000
EARN	24.8014	0.01828	144.9671	0.0000
EPS	13.1856	0.03972	155.0906	0.0000
EVOL	17.4591	0.04529	154.4333	0.0000
ACIND	22.0823	0.03218	176.7831	0.0000
LEV	12.7249	0.00826	123.1782	0.0000
FSIZE	11.9681	0.00000	156.8381	0.0000

** Probabilities are computed assuming asymptotic normality

Source: Authors' Computation, 2024

*Multivariate Analysis***Table 5: Difference (GMM) (Pre-ERM Period)**

Dependent Variable: L(EP)

Method: Panel Generalized Method of Moments

Var	Coefficient	Standard. Error	t-Statistic	Prob.
D(ACIND)	-0.407960	0.748253	-1.881663	0.0606
D(CRO)	0.074761	0.029588	1.906429	0.3200
EARN	-0.009074	0.003776	-2.402826	*0.0167
EPS	0.001337	0.013451	0.099424	0.9209
ERM	0.055645	0.007728	0.730481	0.4655
EVOL	-0.061041	0.048107	-1.268863	0.2052
FSIZE	0.004662	0.001650	2.825027	*0.0050
D(D(LEV))	0.010840	0.013885	0.780701	0.4355
D(RMCI)	0.193384	0.260065	0.050713	0.1024
R-squared	0.423858	Mean dependent var.	0.048635	
Adjusted R-squared	0.409047	S.D. dependent var.	0.117427	
S.E. of regression	0.090270	Sum squared resid.	3.169858	
Durbin-Watson stat	2.034165	J-statistic	62.05392	
Instrument rank	20	Prob.(J-statistic)	0.003000	

*Level of significance (5%)

Source: Authors' Computation, 2024

The results of the pre-ERM GMM panel (ERM and earnings quality) are summarized in Table 5. CRO coefficient is positive with a value of 0.074761, indicates an increase in CRO unit contributes to a growth in firm value of around 5 per cent (EP). However, at a level of 5 percent significance, CRO is negligible ($0.32 > 0.05$); this means that the existence

of CRO does not automatically affect earnings quality in the pre- Enterprise Risk Management context. The ERM_{index} showed a coefficient value of 0.05564; this implies that an increase in ERM unit would result in increase in earnings quality (EP) by 5 per cent.

Table 6: Difference Method of Moments (GMM) (Post- Enterprise Risk Management Period)

Dependent Variable: D(EP)

Method: Panel Generalized Method of Moments

Var	Coefficient	Standard. Error	t-Statistic	Prob.
D(ACIND)	-1.145268	0.651863	-1.756917	0.0797
D(CRO)	0.455905	0.031593	2.769564	*0.0476
EARN	-0.009177	0.002983	-3.075927	*0.0022
EPS	0.004284	0.011645	2.367827	*0.0221
D(ERM)	0.280285	0.012879	6.233862	*0.0412
EVOL	-0.013179	0.042683	-0.308759	0.7577
FSIZE	0.005837	0.001452	4.020681	*0.0001
D(D(LEV))	0.019721	0.012212	1.614835	0.1072
D(RMCI)	0.315561	0.290121	2.087689	*0.0474
R-squared	0.557362	Mean dependent var.	0.048635	
Adjusted R-squared	0.545983	S.D. dependent var.	0.117427	
S.E. of regression	0.079123	Sum squared resid	2.435334	
Durbin-Watson stat	2.259611	J-statistic	42.60358	
Instrument rank	20	Prob.(J-statistic)	0.000003	

* Level of significance (5%)

Source: Authors' Computation, 2024

Results from Table 6 presents the Post-ERM (ERM and Earnings Quality) GMM panel tests. It shows that on the average coefficient of CRO is positive with a value of 0.455905, this indicates that an increase in CRO unit contributes to an growth in earnings quality (EQ) of around 45 per cent.

CRO is also important at p-value (<0.05) with 5 percent level of significance; this implies that the existence of CRO leads to an improvement in earnings quality in the post-ERM era. The ERM_{index} has 0.280285 as a coefficient value; which means that a unit rise in ERM would lead to an increase of 14 per cent in earnings quality. Also, Enterprise Risk Management is significant at p-value <0.05

Table 7: Difference in Differences Analysis

Variables	Pre-ERM (t1) 2007- 2011		Post-ERM (t2) 2013- 2017		Differential (t2-t1)		
		Sig		Sig		Sig (Diff)	Change in sig (Diff)
L.EP	0.3427	0.3252	1.9627	0.0162	L.EP	0.3091	45.6
ERM	0.9722	0.1741	2.9621	0.0282	ERM	0.1459	39.1
CRO	0.0812	0.6231	2.1431	0.0018	CRO	0.6213	48.7
RMCI	-0.7522	0.2741	-0.5222	0.6722	RMCI	0.3981	-46.3
EARN	0.8629	0.5326	2.9626	0.0423	EARN	0.4903	58.9
EPS	0.7282	0.8622	3.2901	0.0021	EPS	0.8601	10.1
EVOL	0.2862	0.8721	2.1912	0.0212	EVOL	0.8509	19.4
ACIND	-0.6271	0.9721	1.0162	0.5181	ACIND	0.9541	-7.82
LEV	0.2862	0.9261	0.8123	0.5322	LEV	0.3939	39.7
FSIZE	0.8629	0.1518	2.8911	0.0329	FSIZE	0.1189	11.8
Observations	500	500	500	500			
Hansen_test	4.752	8.62	18.62	16.96			
Hansen Prob	0.275	0.712	2.614	0.032			
AR (1) test	-0.681	-1.912	-1.972	-2.019			
AR (1) P-value	0.1812	0.4671	2.971	0.0019			
AR (2) test	-0.721	-0.145	-0.8511	-			
AR (2) P-value	0.642	0.852	2.428	0.3281			

Source: Authors' Computation, 2024

Table 7 shows the analysis of the differences between the pre-ERM and post-ERM. The (L. EP) i.e., Lagged Earnings reveals a positive increase from the Pre-ERM to Post-ERM period with 45.6% increments. This means that there is an improvement in earnings after the implementation of ERM. Other Dependent variable such as ERM, CRO, EARN, EPS, EVOL, LEV, and FSIZE show an increased in value from the pre ERM to Post ERM period. In overall, the ERM implementation contribute to Earnings quality by 45.6% increment the period of post-ERM (2019-2023). These findings underscore the importance of ERM program for organizations especially financial firms

which face different types of risks in their operations.

Discussion

Evaluation of the dependent variables for each period is needed for an appropriate comparison. Considering the Pre-ERM at Table 5, the result reveals that the coefficient of CRO is insignificant; this means that the availability of CRO does not increase earnings during pre-ERM era. This implies that CRO's existence alone cannot effectively assess or improve a firm's worth or earnings. This result is consistent with the Bromiley et al. (2014); Pagach and Warr (2011) which concluded that CRO's existence alone cannot increase the firm's

earnings. Although, we may not generalized it for individual firms, however, there are other contributing factors such as the market value of an organization, capital structure and other exogenous variables that impact firm earnings. In addition, the ERM_{index} registered 0.46% as coefficient value. This could mean that failure by most companies to adopt ERM during this time could result into the inverse association between the ERM_{index} and earnings quality.

The finding of the Risk Management Committee independence (RMCI) revealed an insignificant result; this means that the risk management committee independence did not increase the firm's earnings during this time. This may also imply that independent directors are not exercising their risk governance oversight role. Another explanation for this may be the non-involvement of independent directors in risk committee activities. On the contrary, during the pre-ERM period, firm size formed a positive and significant level ($0.005 < 0.05$) relationship with earnings persistence. This means that the size of a company has a favourable effect on organization earnings. The result corroborates the findings of Bell, Peecher, and Solomon (2012); Cohen et al. (2014) that the size of a firm has a significant impact on earnings quality.

Furthermore, there is a need to examine the post-ERM (Table 6) and make an appropriate comparison. The result displays that the coefficient of CRO is significant, this implies that the availability of CRO contributed significantly to earnings quality in the period after ERM. This result is consistent with previous studies which examined the relationship between Enterprise Risk Management and earnings quality. For example, the study of Soliman and Adam (2017) found that ERM has a positive and significant impact on company's earnings in emerging economies. Studies in developed

economies found that ERM implementation empirically reveals an increase in earnings quality such as growth in sales, increase in market capitalization and incremental increase in share price (McShane et al. 2011; Farrell & Gallagher, 2015). Furthermore, other studies Cohen et al. (2014); Bell et al. (2012), show that Enterprise Risk Management adoption has a greater influence on market capitalization and other capital market indices of the organization.

The result of the risk management committee independence (RMCI) shows a positive impact on earnings quality ($0.05 < 0.05$). This means that the risk management committee independence has great impact on firm's earnings. It may also connote that independent director exercise their oversight role of risk governance, risk management, and risk disclosure which has contributed positively to earnings quality. Another explanation for this positive relationship may be that directors' independence in the risk committee would ensure compliance with respect to ERM implementation. The result of audit committee independence (ACIND) produces an insignificant relationship with earnings persistence at p-value of ($0.07 > 0.05$). This implies that the directors' independence from interference on the audit committee does not necessarily have an influence on consistency of earnings.

Legitimacy theory opines that as organizations are bound by social contracts within their environment, however, it is legitimate for them to provide useful information regarding their financial and non-financial activities. The findings thus establish the need for organizations to earn public trust by legitimizing their social connectivity with its stakeholders through transparent disclosure of appropriate information like ERM activities. This explains the importance of legitimacy by firms in the context of social reporting

(ERM disclosure) that affects public perception of the firm. It is thus appropriate and legitimate for organizations to publish issues of risk and other related matters that can protect the interest of stakeholders to the appropriate regulatory authorities. This study has provided empirical evidence on the practical implications of ERM on the ethical conduct of business, corporate governance and transparency in the reporting of organizations' activities. The result from the empirical analysis emphasizes that organizations should embrace and implement ERM framework, they should also incorporate information on ERM in their reporting cycle. It was also found out that corporate sustainability, corporate growth and corporate reputation can be affected negatively in the long run if the organization fails to comply with ERM reporting and disclosures.

5. Conclusion and Implications

This research provides empirical investigation into the implementation effect of ERM on earnings quality in Nigeria. We considered fifty (50) financial firms in Nigeria taking into concern, the pre-ERM and post-Enterprise Risk Management period. We analysed the dataset using the difference Generalised Method of Moments (GMM) and Difference in Differences (DID) estimators. The study concludes that earnings quality reveals an insignificant relationship with enterprise risk management during the period of pre-Enterprise Risk Management. While we found that ERM implementation contributes 45.6% increase to earnings quality during the post- Enterprise Risk Management period (2019-2023). This connotes that compliance with

implementation of ERM has greatly impacted quality of earnings of the studied financial firms. The empirical evidence shows that implementation of ERM contributes to wealth maximization of shareholders.

The findings from this study adds to literature in accounting and finance with respect to ERM research in under-investigated context (Sub-Saharan Africa) with a specific focus on Nigeria. Most importantly the role of CRO and a robust risk governance structure are major determinant factors for successful implementation of ERM program. The participation of the board directly in issues of risk governance affect to an extent the success or otherwise effective implementation of ERM framework. This study empirically provides practical implications for regulatory agencies, policy makers, board executives, shareholders on the need for organizations to deliver all-inclusive and qualitative information on risks to their stakeholders.

The recommendation from this study states that steps should be taken for full compliance with mandatory enterprise risk management (ERM) disclosure by all firms in Nigeria other than the organizations operating in the financial industry. This will improve the level of risk disclosure to various stakeholders. Also, actions should be taken by regulators to ensure that companies imbibe the principle of independent assurance of risk disclosure separately in the annual reports. Our study provides a reference point for further research in other emerging economies especially in the Sub-Saharan Africa especially in Nigeria on the relationship between ERM and earnings quality.

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